

VIII. *The Butterflies of Cyprus.* By HENRY J. TURNER,
F.E.S.

[Read March 3rd, 1920.]

THE late Mr. A. E. Gibbs contemplated a paper on this subject, and had frequently discussed the fauna of Cyprus with me.

The acquisition of a very large number of Cyprian butterflies subsequent to my friend's death showed me that almost every species had special peculiarities distinguishing it from the forms of the same species on the mainland of Syria and Asia Minor, and from the forms known from other parts of the Mediterranean littoral.

From 1907 to 1912 Sir John A. S. Bucknill was Judge-Advocate of the Island, and although most of his leisure was devoted to the special study of Ornithology, he was able to pay a little attention to the Lepidoptera, and in the British Museum cabinets will be found the insects which he then collected. In 1912 he was moved to Hong-kong and subsequently to the Straits Settlements, but in the year 1916 he wrote out his notes at length with the view of getting them published in the "Proc. Zool. Soc." For some reason or other the paper was not read at that Society, and by the kindness of my valued correspondent, Mr. G. F. Wilson of the Chief Secretary's Office in Cyprus, I have been able to make copious extracts from it and embody them in the present paper.

In the introductory paragraphs of his MS., which deals with the Lepidoptera as a whole, Sir John Bucknill sums up the work previously done as follows (so far as it relates to the Rhopalocera):—

"In 1853 Julius Lederer sent a collector—one Franz Zach—to Cyprus; he seems to have made Larnaca his headquarters, and to have travelled in that neighbourhood and to the centre of the Island; I do not know how long he remained, but he appears to have been there at any rate in May. Lederer expressed himself as very dissatisfied with Zach's mission, because 'the vicinity of Larnaca where Herr Zach, after having travelled four weeks, arrived was found bare; water very scarce and the soil

chalky and almost devoid of vegetation; and an excursion to the centre part of the Island was equally unsuccessful.' Zach, however, obtained nearly forty species of butterflies and over fifty species of moths, and Lederer published an account of his visit in 'Verhand. z. b. Ver. Wien,' vol. v (1855).

"In 1887 and 1888 Dr. F. H. H. Guillemard made two ornithological visits to the Island, and in the papers which he published in the 'Ibis' for 1888 and 1889, descriptive of his extensive itinerary, he occasionally makes casual mention of some Lepidoptera; but his observations were not, I think, intended to be regarded as of scientific accuracy.

"In the late 'nineties an Austrian subject residing at Larnaca—a Mr. C. H. Glazner—sent a number of specimens to Lord Rothschild's Museum at Tring, and some of his records are noted in the later volumes of the British Museum Catalogue.

"In 1901 and 1902 Miss D. M. A. Bate collected some Lepidoptera, which were received by the British Museum.

"Mr. T. Bainbrigge-Fletcher seems, not very long ago, to have made a collection in the Island.

"Mr. (now Major) P. P. Graves, sometime correspondent of the 'Times' at Constantinople, has informed me that a Mr. Marsden collected in Cyprus comparatively recently.

"Personally my collecting was principally done in the neighbourhood of Nicosia, but I spent three midsummers (from July 1st to Oct. 1st) on the Troödos (the southern) range at an elevation of between 5000 and 6000 ft., and occasionally made short periodical visits to Kyrenia, Limassol, Larnaca, Famagusta and Paphos."

He goes on to remark:—

"There is a great variety of trees, shrubs and flowers on the lower slopes of the southern range, and I often wished I had been able to pay this ground a visit, to which a journey in April would, I feel sure, be of value. On the higher ground there is less verdure, but some interesting insects occur there, notably the handsome *Dryas pandora*, *Limenitis camilla (rivularis)* and *Libythea celtis*.

"The northern range is a good ground for 'Blues,' and it also gave me *Ypthima asterope*, *Cigaritis zohra (= acamas)*, and *Glaucopsyche melanops (= paphos)*.

"*Charaxes jasius* and *Pararge roxelana* occur locally in the plains, as does *Thais cerisyi*.

“It is interesting to note that silk-worms were introduced into Cyprus in the sixth century in the reign of the Emperor Justinian I.”

The Island is somewhat square in shape, having a range of mountains bordering the northern shore and a second range in the south of considerably greater height, with the extensive mountain knot of Troödos over 6000 ft. in elevation, while between these lies an extensive plain from east to west right across the Island, an area which all the summer is very hot and dry, almost a desert.

Standing as it does at the junction of the S. European Mediterranean area and the converging lines of palaeartic and tropical Asian influence, Cyprus must needs be most interesting from a faunal aspect. The bulk of the species are European, most of them variants of the commoner species of the Central Mediterranean littoral, such as *P. machaon*, *P. brassicae*, *P. rapae*, *P. daphidice*, *A. crameri* (*belia*), *E. cardamines*, *G. cleopatra*, *C. edusa*, *S. hermione*, *S. briseis*, *H. semele*, *P. aegeria*, *P. megera*, *P. maera*, *C. jasius*, *L. rivularis*, *P. atalanta*, *E. polychloros*, *D. pandora*, *L. celtis*, *B. quercus*, *R. phluca*, *S. baton*, *A. medon*, *P. icarus*, *C. argiolus*, *C. alceae*, and *T. acteon*. While from the Asiatic side are derived *P. chloridice*, *Y. asterope*, *S. anthe*, *S. anthelea*, *S. roxelana*, *E. telmessia*, *E. lupinus*, *C. thersamon*, *L. boeticus*, *T. balcanicus*, *S. telicanus*, *C. trochilus*, *C. phiala*, *G. paphos*, *C. acamas*, *G. nostrodamus* and *P. mathias*. *D. chrysippus* may be either Asian or African in its immediate origin, as also may *S. telicanus*, *P. mathias* and *C. acamas*.

Taking a negative view, exclusive of the unconfirmed records of more than sixty years ago, there is an absence of Hesperias, Erebias, Brentlids, Argynuids (1), Melitaeids, Ruralids (1), Lycaenas, Plebeids, *Agriades*, etc., and of truly tropical species except *L. boeticus*, which is very common.

I am much indebted to my friend Mr. G. F. Wilson of Nicosia for the very large amount of material he has so kindly collected for me during the last three years, and also for furnishing me with practically all the previous records of the Rhopalocera of the Island. My best thanks must also be accorded to Sir John A. S. Bucknill for permission (through Mr. G. F. Wilson) to make use of copious extracts from his MS. records. For the numerous suggestions and notes on the unconfirmed records and on the

more obscure species, I owe very much to Major P. P. Graves of Constantinople, whose knowledge of near Eastern Lepidoptera is from personal experience recent and reliable. And not less am I indebted to the acumen of Dr. Chapman for his kind help and advice, especially so for the separation of the new species *Glaucoopsyche paphos* from *G. melanops*, for the confirmation of *E. telmessia* in place of *E. jurtina (hispulla)*, and of *C. phiala* in place of *Z. galba*.

In the following notes J.A.S.B. = Sir J. A. S. Bucknill, A.E.G. = A. E. Gibbs, G.F.W. = G. F. Wilson, T.B.-F. = T. Bainbrigge-Fletcher.

Papilio machaon L. [race *asiatica* Mén. = *sphyrus* auct. ;
ab. *cypria* Vrtz.].

“Recorded by Lederer. I found it very common. I was informed by Major P. P. Graves that a form from Nicosia has been separated as peculiar to Cyprus.”—J.A.S.B., 1916.

“Only a few have been sent. One from Nicosia in June is the summer form with broad band to which the discal spot is joined. This used to be called *sphyrus*, but I suppose we must now call it *asiatica* Mén., or *sphyroides* Vrtz. Verity says that there is in Cyprus a small race of *machaon* which is peculiar to the Island, as there also is of *P. brassicae*.”—A.E.G., 1916.

“Common in the plains from March to October. Met with rarely in the mountains. There appear to be three broods, in February, April and September.”—G.F.W., 1918.

The fairly long series received show more ground-colour than the British race, and the yellow is decidedly richer, although not so rich as in the form *aurantiaca* Spyr. In size the race is considerably above the average British form; one female measures just over 100 mm. in expanse.

According to Seitz (“Pal. Gr.-Schm.”) the name *sphyrus* Hb., has been wrongly applied by dealers to specimens in which the marginal band of the hind-wing is wider and makes a close approach or meets the spot at the end of the cell, also having somewhat darker ground-colour. This is the form *asiatica* Mén. [“Cat. Mus. Petr. Lep.,” I, 70 (1855)] and most of the Cyprian specimens are of this race. The true *sphyrus* figured by Hübner [“Ex. Schm.,” 775-6 (1826 ?)] and refigured by Seitz [*l.c.*, I, 6 *d* (1906)] is a much paler form caused by the black marking being

very thickly dusted with yellow scales, with an increase of blue on the hind-wings both above and below, and of small size.

Verity in "Rhop. Pal." pp. 13, 108 (1905) describes a very small form of the *asiatica* race as *cypria* (*i.e.*, pl. iii, 1). The base of the fore-wing is more strongly powdered with yellow atoms, and the blue in the band of the hind-wing is considerably reduced. This form is evidently rare, as it has not been sent. All my specimens are of early May capture except a smaller not fresh specimen of April 1st. I take it, there are only two broods really, and that this last is a "precocious" specimen of the first generation to which my May specimens belong.

The tails strike one as being exceptionally long, especially for an island race.

Thais (Zerynthia) cerisyi Godt. [race *cypria* Stich. (1907)].

"Recorded by Led. I found it local, but in certain spots very common in early spring."—J.A.S.B., 1916.

"I took this to be the Asia Minor form *deyrollei* Obtr., but it appears to differ, and Stichel has called it var. *cypria*. The long series of both males and females appear to be a very uniform lot and to present very little variety."—A.E.G., 1916.

"Separated as var. *cypria* by Herr Stichel in 1907. Found, so far as I am aware, at only one spot in the Island, *i.e.* Aghirda at the foot of the Kyrenia Pass. Emerges during the first week in March, and flies till about the first week in April, when it disappears altogether. The males are fairly common at this spot, but females are not so easily taken owing to their sluggish habits. The males are continuously on the wing in the sun, but I have only taken the females by putting them up in walking."—G.F.W., 1918.

A long series of this species including a fair proportion of females has been received. They are very uniform in size, marking, and colour. In the males there are two shades of ground colour, some being very slightly duller than the rest; they show scarcely any aberration and much resemble the race *cretica* Rebel, from Candia, but are slightly larger, of not quite so white a ground, with somewhat increased markings, and have the tail remote from the anal angle developed, whereas in *cretica* all three tails are almost suppressed. While the type form has a

row of at least six red blotches on the margin of the hind-wing and *cretica* only the first and last of the row, *cypria* often has slight indications at least of one or two more. In fact, it stands intermediate between the type and *cretica*. The females are also pretty uniform, but show some aberration in the development of the red marginal blotches of the hind-wings, which in some specimens are only separated by the dark veins, and in others the lighter ground is also apparent on both sides of the dark veins. All the colours of the females are richer and fuller; they are darker and more marked than the females of *cretica*. There are no specimens of the race *deyrollei* Obthr.

[*Aporia crataegi* L.]

“Dr. Guillemard mentions having met with this species in 1887. It was not recorded by Lederer; and I never saw it.”—J.A.S.B., 1916.

“Recorded but I have never seen it.”—G.F.W., 1918.

Has not been confirmed. Major Graves says (*in lit.*): “East side of Lebanon and Anti-Lebanon.” Led. does not record it from Beirut.]

Pieris brassicae L. [race *catoleuca* Röber. (1896); ab. *nigronotata* Jach.; ab. *cypria* Vrtv.]

“Recorded by Led. I found it abundant everywhere.”—J.A.S.B., 1916.

“A specimen labelled ‘*rapae*’ puzzled me. I thought for the moment it was *P. mami*, but the apex of the fore-wing was too acute, almost falcate. It then dawned upon me it was a quite small *brassicae*, which it proved to be. Verity proposes to call all these dwarf *Pieris* forms by the varietal name of *nana* to whichever species they may belong.”—A.E.G., 1915.

“You have sent me two of these dwarfs. One of the ordinary-sized males sent has a small black discal spot on upperside of fore-wing. This is the var. *nigronotata*, and I believe it is not rare where it occurs, which is chiefly in the southern part of its range. I have it from N. Africa—I think Tunis. Your summer brood is interesting and almost as good as the Asiatic form, which has been called *catoleuca*; in fact, I think we may call them *catoleuca*. It is the females which have been given this name, for they have a very strongly marked upperside with very clear light hind-wing underside.”—A.E.G., 1916.

"Common everywhere from March to October. Early broods have the under-wing much darker green than the summer broods."—G.F.W., 1918.

I have received a short series of the summer brood only, which has been named *lepidii* by Röber, but, as Verity points out ("Rhop. Pal."), quite unnecessarily, since the spring emergence has for many years had the name *chariclea* Steph.

The females in the series are all from Troödos, 4000–6000 ft., and are very large (the largest female 70 mm. in expanse), with intensely black markings, all large in extent. The apical blotch is very irregularly extended on the inner side; two of the "teeth" in some examples run along the veins to the large upper spot of the fore-wing. Both discal spots and the inner marginal streak are very large, the two former having more or less dusky clouding between them, while the lower spot is quite united to the inner marginal streak. Only one example has this streak obsolescent. At the base of the fore-wings there is a considerable amount of black dusting which extends along the costa and is there more dense. The underside of the hind-wings is uniformly pale yellow without any dusting of dark scales. The specimens seem to agree quite well with the Asiatic form named *catoleuca* by Röber. In the *catoleuca* in Seitz (I, pl. xix, c) there is an additional spot on the underside of the fore-wing (at the top). This is not present in the Cyprian form; Verity neither figures nor refers to this spot. Incidentally, I note, that the figure of *nepalensis* Verity ("Rhop. Pal." pl. xxxv, 17) agrees exactly on the upperside with the Cyprian females, but it is stated to have a very considerable amount of dusting on the underside of the hind-wing. On the undersides of the Cyprian females the spots of the fore-wing have more rather than less black continuation marking between them.

The only male I have from Troödos is small, that is more of the typical size, and it is a *nigronotata* Jach., with the black "spot" (thin dash) on the disc of the fore-wing. The other males are from the plains, Nicosia and Platres. One of these is also an ab. *nigronotata*. In both these specimens this "dash" is situated midway between the veins as it is in *P. deota* from the Pamirs and in the ab. *cypria* figured by Verity ("Rhop. Pal." pl. xxxv, 14), whereas curiously in Verity's figure of *nigronotata* (*l.c.*, 11)

it is situated *along* a vein. My Cyprian males measure 66–70 mm.

Verity has named a very small form from Nicosia as ab. *cypria*, and gives the expanse as 45 mm. on the average. I have not had one sent.

Pieris (Ganoris) rapae, L. [race **leucosoma** Schwrd. (1905);
vern. gen. **vaga** Früh.].

“Recorded by Led. I found it abundant everywhere.”
—J.A.S.B., 1916.

“An ordinary male spring form, which from its appearance might have been taken in the North of Europe.”—
A.E.G., 1916.

“Common everywhere from March to October: most plentiful in April and May.”—G.F.W., 1918.

Only a few specimens have been sent, taken in Nicosia in March (♀s) and in April (♂s) and one ♂ from Troödos in July. They are of average size, of remarkably pale yellowish white on underside of hind-wings with no trace of dark powdering. Presumably the March–April specimens were of the first generation, *metra* Steph. In the males of this generation the discal spot is very faintly marked and the costal blotch of the hind-wing is scarcely traceable. In fact they conform tolerably well to the Syrian race *leucosoma* Schwrd., of which the vernal brood has been called *vaga* Früh. The Troödos male of July being of the summer generation is of course more plainly marked.

Pontia daplidice L. [race **persica** Bien.; ab. **minuscula** Vrty.].

“Recorded by Led. I found it very common everywhere.”—J.A.S.B., 1916.

“Two ♂♂, both apparently summer brood, taken April and June. The former had a very lightly marked apex and very white wings, and was of normal size. The latter was a small specimen, which I attribute to the var. *raphani*, being much yellower below than the ordinary form. Both specimens had very small discoidal spots.”—A.E.G., 1916.

“This species emerges in February in very small numbers. In May, however, they are abundant everywhere in the plains, and a few are to be seen on Troödos mountains up to about 5000 ft. A third very small brood emerges in September. The green underside varies greatly both in shade and design in the various broods; the green in the

earlier broods is dark and covers most of the hind-wing; later *daplidice* have the green very pale indeed, and very little of it, probably the var. *raphani*. *Daplidice* varies also in size a great deal, some specimens I have taken being no larger than a common blue."—G.F.W., 1918.

A long series, dates ranging from May 12th to mid-July. None of the early brood were received, hence none are of the *bellidice* Ochs. (spring) form if it be produced there. The earlier specimens (May) are of the ordinary *daplidice* form, *i. e.* neither extreme, but intermediate between the *bellidice* of spring in the northern part of its range and the summer *raphani* Esp., which is strong yellowish green on the hind-wing below. Most of the later specimens are of this last form with a good sprinkling of a form corresponding to the later summer race from N. Africa called *albidice* Obthr., in which the green is still more camouflaged by a paler yellow, the markings becoming obsolescent on the inner margin and base, and the veins more emphasised in yellow. This has been named *persica* Bien.

One underside aberration has the yellow approaching orange in richness without any diminution of marking. Another has the marking reduced so that there is a complete wide white band across the wing from costa to inner margin.

None of the specimens are large; a series taken at the same period in Catania are all much larger than any of the Cyprian examples. In fact, there seems a tendency to reduction in size, and one example is but a shade larger than a good-sized *Polyommatus icarus* and is the form ab. *minuscula* Vrtý.; it was taken in July on Troödos.

Except in one specimen, a female, which has a slight yellow flush and approaches the ab. *flava* Obthr., the ground-colour above is a pure white. There is but little trace of the greenish yellow at the base of the fore-wings below, a character noticeable in some of the southern races.

Most of the males have the discoidal spot on the fore-wing somewhat small, contrasting with that of the females which is generally somewhat large. One male has a spot developed in the anal angle of the fore-wing above, a characteristic feature of the female. As a rule the males have absolutely pure white hind-wings with no trace of markings, a few only have the costal blotch developed, and a few are dark-scaled along the ends of one or two of the veins near the apex.

The females are extremely uniform; a good proportion

of them have an incipient dark scaling connecting the anal spot on the fore-wing with the extended apical markings, an aberration I have not noted in series received from elsewhere.

Pontia chloridice Hb.

“Major P. P. Graves informs me that this species was taken in Cyprus by Mr. Marsden.”—J.A.S.B., 1916. (Not recorded by Led.)

“In 1918 for the first time, I took a few examples near Platres at which locality it was once before recorded many years ago.”—G.F.W., 1918.

These few specimens were sent to me, and this year (1919) another came, taken on the plains near Nicosia. They are typical except that the last specimen has the underside of the hind-wing considerably paler; it is a female taken on May 18th, the others were taken on July 7th. Probably the two broods are represented, normally the spring brood has the darker green underside. The specimens are the worse for wear, and the suggestion is that they are immigrants from the mainland.

Anthocharis crameri Btlr. (*belia* auct.) [group *ausonia* Hb.; race *taurica* Röh.].

“Led. recorded the form *ausonia*. I obtained what was identified at the Brit. Mus. as *belia*. The Report of the Cyprus N.H. Soc., 1912–13, records the capture of *belia* var. *taurica*.”—J.A.S.B., 1916.

“Much lighter below than my series from S. France, but apparently flying about the same time (March). Six specimens.”—A.E.G., 1915.

“My latest specimen of *belia* is April 10th. Does it fly later? There seems to be a curious overlapping of *belia* and var. *taurica*. The latter is, of course, summer brood, but I have one specimen March 9th. In many respects it resembles *taurica*, but I think it must be an aberrant specimen of *belia*. Your *belia* is *crameri(a)* of Butler as far as I can make out at present.”—A.E.G., 1916.

“Emerges in February and flies until the end of March, when its place is almost immediately taken by the summer form, in fact I have taken old *belia* and fresh var. *taurica* together; there seems to be a curious overlapping. *A. belia* is found in small numbers all over the plains in barley fields where the mustard plant grows; v. *taurica* is much

more abundant, also in the plains, but I have also taken this species rarely on Troödos during June and July."—G.F.W., 1918.

This common Mediterranean species, to which between thirty and forty varietal and aberrational names have been applied and more suggested, is a very difficult one to deal with. The name *crameri* Btlr., has now authoritatively replaced the name *belia* Cr. et auct., by the decision of the British Nomenclature Committee.

Dr. Verity in "Rhop. Pal.," pp. 174-5, divides the various races into two groups which he designates the *ausonia* Hb., and the *occidentalis* Vrtv., groups. The former, to which the Cyprian race belongs, he diagnoses by the following comparative characters. Apex of fore-wing wide; hind margin slightly convex; markings black powdered with white scales giving a more or less grey appearance; the discal spot at the end of the cell narrow and generally of an irregular S shape; the costa with few if any striations; the underside of the hind-wing bright green, distinctly bordered with more or less yellow, generally more, and very irregular in contour with a tendency for the white spaces to become marked and suffused with yellow, in fact it is aptly remarked that the bands and spots of white are so indefinite and irregular in shape as to be scarcely capable of definite description; and finally the white has the tendency to a nacreous appearance in only one or two of the earliest specimens to emerge.

The *ausonia* group is made up of races from Asia Minor (Smyrna is the locality of the type of *crameri*), S. Russia, the Balkans, Greece, and S. Italy, including Sicily.

The dates of capture of my Cyprian specimens are (eighteen different dates) from February 13th to May 14th. The longest gap between the dates, being of twenty days between March 25th and April 14th, is probably approximately the time between the two broods. All the specimens come from Nicosia in the middle of the central plain and from Aghirda just at the foot of the northern range of mountains.

When the specimens are arranged according to date of capture the two extremes are easily separable by numerous characters, particularly by those on the underside of the hind-wing. The specimens of the latest dates are very decidedly yellow on the hind-wing below with a minimum of green, the apex of the fore-wing being yellow only; the

pattern is extremely indefinite as to shape and direction, with the yellow much suffused and running into the white irregularly. The earliest examples are much greener and the pattern has a certain amount of definition, the yellow is less irregularly suffused, and there is a tendency to a nacreous appearance in some of the more defined white areas. The later specimens are generally speaking much larger, and the striations on the costa fore-wing, never much in evidence, are practically absent. The discal blotch in the earlier specimens is not nearly so heavy as in the later emergence. As noted above by A.E.G., there is much overlapping, but the general advance from the early spring (*ausonia*-like) to the later emergence, to which the name of *taurica* has been given by Röber (Seitz), is well demonstrated by the undersides of the series when arranged according to dates of capture, although it is impossible to draw a definite line of separation of the two forms. I doubt if the earliest spring form as exemplified in the *occidentalis* group (France, Spain, etc.) ever occurs in the Island, *i. e.* the deep green underside hind-wing with strong nacreous interspaces.

Euchloë cardamines L. [ab. *turritis* Ochs.; ab. *minor* Ckrl.; ab. *phoenissa* Kalchb.].

“One thing that struck me was the presence in one or two *E. cardamines* of a black dusting forming almost an edging on the inner margin of the orange apical spot in the males (no females sent).”—A.E.G., 1915.

“Some of your specimens are very small, as are the Sicilian ones. They appear to prevail in the Mediterranean Islands, while they are rare with us. But the chief point of interest about *E. cardamines* is, I think, the dark inner margin to the orange apical spot. One you have sent me has quite a distinct black border to the orange tip.”—A.E.G., 1916.

“I obtained this fairly commonly in spring.”—J.A.S.B., 1916. (Not recorded by Led.)

“This is a very local species; I have seen it only at a few spots on the Kyrenian mountains. Emerges in early March and flies till the middle of April. Mr. Gibbs thought that there was a variety of this species, and some specimens I sent him had a distinct black dusting on the inside edge of the orange colouring. Males are not uncommon, but the only female I have ever seen in Cyprus, previous to

1918, I sent to Mr. Gibbs in 1915. But in March 1918 this species was particularly common, and I took some ten females."—G.F.W., 1918.

Only a comparatively few specimens have been received, but amongst them are a remarkably small form of which the males measure only 26.5 mm. and the females 27 mm. This is the form ab. *minor* Ckrll. The specimens generally are a small race; among them are several of the ab. *turritus* Ochs., in which one side of the discoidal spot has emerged from the orange apical area and is contiguous to the white general ground-colour. Several examples have dusky scales sparsely scattered along the inner margin of the orange apical blotch, and thus are the incipient stage of the form known as ab. *phoenissa* Kalchb. One male has only a minute dot for the usually well-defined discal spot fore-wing. In the females there is a tendency for the hind-wings to become yellow on the upperside. In all the specimens the orange is comparable in extent to that of our British race (*britannicae* Vrtv.) in not extending to the anal angle, but terminating abruptly some distance from it, whereas in the Riviera race it curves down and terminates at the anal angle or even on the inner margin.

[*Gonepteryx rhamni* L.

"Dr. Guillemard reports having met with this insect in 1888, but probably it belonged to the next species; I did not see it."—J.A.S.B., 1916. (Not recorded by Led.)

"Recorded, but I have never seen it."—G.F.W., 1918.

This record appears to be an error. A large number of specimens of *G. cleopatra* have been received, but of not one had I the slightest doubt.]

Gonepteryx cleopatra L. [race *taurica* Stgr.].

"Led. records it. All the specimens of this species, which was very common, were identified by the B.M. as var. *taurica* Stgr."—J.A.S.B., 1916.

"*G. cleopatra* v. *taurica* is interesting. I have compared it with specimens from several regions, and the nearest approach I have is one I took in the Balkans. The ground-colour of *taurica* is said to be lighter than the usual form, but I cannot see much difference in this respect though the orange suffusion is certainly less than in any other forms I have seen. My most strongly marked specimens are from Morocco."—A.E.G., 1916.

“A fairly common species of three broods; the first emerges towards the end of February, the second and larger brood at the end of May, and a very small brood in October. A few are found in the plains generally in flower gardens, but the largest numbers occur in the mountains usually near small streams and among the bracken. Females are comparatively rare.”—G.F.W., 1918.

In Seitz, “Pal. Gr.-Schm.,” I, pl. 24, the figure of race *taurica* shows but slight, if any, diminution of the orange flush on the fore-wing; on the other hand Verity, “Rhop. Pal.,” pl. xlviii, figures *taurica* as having only the slightest amount of this flush. In the Cyprian race the extent of the orange agrees with neither figure, but lies midway between in amount with a balance towards the larger. In some of the females there is a slight indication of the male ground-coloration around the outer margins of both wings, but especially at the tips of the fore-wings, and in one specimen this suffusion extends somewhat strongly over the whole hind-wing. The size of the discoidal is uniformly small on all wings. The orange is somewhat paler than in the type form, possibly owing to its more graduated fall in depth of colour along the outer margin. I do not think that the ground-colour is really lighter except that the females appear whiter, which is possibly caused by the influence of the light undersides.

As to the question of three broods, Verity asserts definitely, “Rhop. Pal.,” that with the Italian races there are three generations, which are clearly separated by intervals of a month or two, during which no individuals may be observed, except that individuals of the autumn (3rd) emergence hibernate and may be met with all the winter. The dates of my Cyprian specimens are from March 5th to July 21st, with a very definite interval of seventy days between March 5th and May 14th, and another between June 20th and July 21st of thirty-one days, but this latter may be qualified by the fact that the July specimens were taken high up on the Troödos mountains and probably belong to the summer (2nd) emergence. The March specimens are quite fresh and have apparently not hibernated. All but the Troödos captured specimens are from the lowlands. So far I have no examples of the autumn brood. Röber (Seitz), “Pal. Gr.-Schm.,” very strongly doubts the existence of three broods or even two, but the long definite intervals during which no individuals

are ever found and the excellent condition of the specimens when captured seem to be against this opinion, and certainly in Cyprus the evidence of G.F.W. would seem almost conclusive. The October-caught specimens are probably a "precocious" emergence of the early spring brood.

Colias edusa Fab. 1787 (*croceus* Fourcr., 1785) [ab. *helice* ♀, Hb.; ab. *helicina* Obthr.; ab. *aubuissoni* Crd[.]; ab. *faillae* Stef.; ab. *obsoleta* Tutt].

"This species I found in great abundance; many curious pale forms were taken, and ab. *helice*."—J.A.S.B., 1916. (Recorded by Led.)

"Very common from March to November, occurring both in the plains and in the mountains; varies greatly both in size and marking. The yellow colour also varies in shade, some specimens being quite dark and others almost lemon colour. Var. *helice* is not common. Occurs both in the plains and on the mountains during April–June. Rarely seen on the wing and not often taken."—G.F.W., 1918.

The Cyprian race is a little above the average in size. Several examples, both males and females, are of the pale orange or lemon colour to which the name *helicina* Obthr., applies. The hind-wings generally have somewhat more dusky suffusion than in the type, and most specimens have the black hind-marginal band of the fore-wings with the veins towards the apex conspicuously outlined with yellow, one or two being ab. *faillae* Stef., with all the veins so emphasised. A few females, having only traces of the lighter markings in the hind-marginal band, are transition to ab. *obsoleta* Tutt. Several very fine var. *helice* Hb., have been sent, including one which has a slight orange suffusion over the fore-wings with hind-wings of the ordinary typical female coloration, orange with dusky suffusion, and having a large well-developed discoidal spot conspicuous by its deep orange colour, an intermediate form, to which Caradja has given the name *aubuissoni*. One or two var. *helice* have white rings around the hind-wing discoidal. Another female is remarkable in having on each fore-wing two "blobs" of dusky scales starting at the middle of the base and reaching nearly half across the wing, a unique aberration, I believe. The same specimen has an unusually large and conspicuous discoidal spot on the hind-wing. The undersides are very uniform

in colour and marking, only one has the ground of the hind-wing below of a bluish colour.

Danaida chrysippus L.

“Recorded by Led. as occurring from the middle of May throughout the summer. It seems rather capricious, however, in its appearance, and I first met with it in 1911. It was then scarce, but since then has been, I am told, abundant. The larva feeds on fennel which is only locally common.”—J.A.S.B., 1916.

“These are quite ordinary forms.”—A.E.G., 1916.

“The records of this species are curious. It was recorded in 1853 and in 1888, after which date it appears to have vanished from the Island until 1911, when a few made their appearance at Kyrenia near the sea. From 1912 to 1914 they were fairly common at Kyrenia, and a few were to be seen inland in the plains; in 1915 and 1916 very few were seen; I saw none in 1917, but they re-appeared again in 1918.”—G.F.W., 1918.

Ypthima asterope Klug. [ab. *inocellata* Strand].

“I found this species fairly common on the northern range. The ocelli seem to show much individual variation.”—J.A.S.B., 1916. (Not recorded by Led.)

“It is the Asia Minor form as is to be expected. All the specimens came from the northern range. Is it not found elsewhere, and is not confined to the mountains? My specimens seem to have come from altitudes between 1200 ft. and 3000 ft. They vary a little in spotting from some without ocelli to others with three. All the Satyrids vary in this way.”—A.E.G., 1916.

“Rather a rare species. I have only found it near the Aghirda Pass among the rocks during March and April. The ocelli show much individual variation.”—G.F.W., 1918.

Some half a dozen examples only have been received of this species so extremely variable as to the number and development of its eye-spots. It may be noted here that Seitz's, “Pal. Gr.-Schm.,” “I, pl. 34 a,” figure is not *asterope*, but *balbus*. There are several figures of the African races of this species *l.c.* vol. xiii, pl. 29. In the Asiatic dry-season form, to which the Cyprian race belongs, the eye-spots are very much suppressed. One example may be called ab. *inocellata* Strand, as being quite destitute of eye-

spots both above and below except of course the invariably present apical bipupillate spot on the fore-wing.

Satyrus hermione L. [race *cyprica* Stdgr.].

“*S. hermione* v. *cyprica* is a fine form and very distinct.”—A.E.G., 1915.

“They are a very even lot with slight variation of spotting. They come from both ranges. Are they confined to the mountains?”—A.E.G., 1916.

“Led. recorded this species, but remarked of it that ‘the bands are hardly half the width which they are in our (*S. European*) specimens, and in the ♀s are almost as in the ♂; the hind-wings are light whitish grey on the underside.’ Scitz figures the Cyprus form as *cyprica*, Stdgr. It is quite common.”—J.A.S.B., 1916.

“A fairly common species, but confined to certain localities. It occurs on the Kyrenian mountains and in the woods between the Kyrenian range of mountains to the northern sea coast. There are none south of the range until the Troödos mountains are reached, where they again occur at altitudes of about 3000 ft. and over. On the Kyrenia range it emerges in May and on Troödos in July and August. Found chiefly on the trunks of olive and carob trees on the Kyrenia mountains and on pine trees on Troödos, and occasionally among rocks.”—G.F.W., 1918.

A large number were sent, all of them were of good size, very dark, and rich in coloration. There are no typical forms and none which can be called race *syriaca*, Stdgr., which are distinguished by a narrower band on all the wings in both sexes, and obsolescence of it at the angle of the hind-wing. Race *cyprica*, Stdgr., is still darker and the bands on all wings nearly obsolescent. In the male the band is traceable as a narrow and somewhat less dark sub-marginal area suffused with the dusky coloration and crossed by the wing veins widely enlarged by scales of the same dark colour as the general colour of the wings. The fringes are clearly light and dark chequered. The apical eye-spot of the fore-wing is very faint and occasionally has the white pupil non-existent. In the female the band of the fore-wing is much narrower than in the type and divided into blotches by the widely emphasised wing-veins. The apical eye-spot is usually well developed, but one or two examples are without the pupil. On the

hind-wing the band is almost wholly obsolete in the anal half, and the rest macular, more or less dusky, and much narrowed. The undersides are marmorated, giving a bark-like appearance to the under surface. The outer area of fore-wing underside is yellowish, the band of the hind-wing below is covered by striations and speckles, while the basal area has much lighter markings, so that there is scarcely any difference between the basal and outer areas so well-marked a feature in the type, but they are separated by a wide deep black line. There is often a small eye-spot midway towards the anal angle of the fore-wing in both sexes.

Satyrus briseis L. [race *fergana* Obthr.; ab. *pirata* ♀, Esp.].

“Led. recorded this species and also var. *pirata*. I found both at Nicosia, the latter being much the less common.”—J.A.S.B., 1916.

“*S. briseis* seems mostly from the lower levels and var. *pirata* wholly so.”—A.E.G., 1916.

“Var. *fergana* is a fairly common species in the plains and at the Kyrenian Pass. I have taken two or three specimens on Troödos at about 5000 ft. Emerges in May, and is fond of rocky places, small caves and river banks, but taken sometimes on the flower of the common thistle. Var. *pirata* is of the same habits and frequents the same locality as the preceding form, but is rare. I saw one on Troödos in 1918.”—G.F.W., 1918.

A long series sent all of large size with very little difference in expanse of male and female. All are of the race *fergana* Obthr., which is the largest and has much rich reddish brown of different shades on the underside of the fore-wing, with well-developed white discal bands on the upperside of both wings. The second eye-spot in the submargin is often obsolescent, being only represented by a more dense spot in the general dark ground, with occasionally a small white pupil. In the female it is usually more apparent. One male has this spot very definite owing to the extension of the white band on the marginal side of the spot, a very unusual occurrence in this sex. The apical spot of the female fore-wing is often destitute of pupil. The underside of the hind-wing in the male has clear white ground partially covered with soft grey, with strongly marked costal and inner marginal blotches, the contrasts being abrupt and strong. In the female

there is a prevalence of the soft grey mottled with darker grey, but not uniformly so, as in most of the Central European forms. Across the wing in this sex run two wide bands of darker shade, deep and abrupt on the outer side, but dissolving more or less into the ground on the inner, and tinged with a rich brown. The inner band is sometimes interrupted in the middle and may have none of the lighter mottled ground of the basal side of it. Some of the females of the *fergana* form show slight traces of the reddish brown on the outer margins of the irregular white band above, an incipient stage of the very fine ♀ ab. *pirata* Esp.

The ab. *pirata*, of which a short series have been sent, has the band on the upperside of a bright reddish ochreous colour. This form is somewhat larger than the *fergana* female, and one or two examples are without pupils to the eye-spots. There is a curious parallelism between *S. briseis* and the Spanish species *S. pricuri* Pier., both species possessing a reddish-ochreous form of the female, which in the latter species is known as ab. *uhagonis* Obth., and is also a very large and strong-looking insect.

Satyrus anthe Och.

"I found this species but not very commonly. I took one specimen on the southern range at over 6000 ft. up."—J.A.S.B., 1916.

"A very rare species met with on Troödos at 5000–6000 ft."—G.F.W., 1918.

Hipparchia semele L. [race *mersina* Stdgr.; ab. *tricellata* Rag.].

"I found this species common, and specimens which I sent to Tring were there identified as the form *mersina*."—J.A.S.B., 1916. (Not recorded by Led.)

"*H. semele* v. *mersina* is very evenly coloured below and different from any form I have."—A.E.G., 1916.

"A common species occurring everywhere from April to August. Found both in the plains and on the mountains. In the mountains it usually rests on pine trees, and in the plains it is found among rocks."—G.F.W., 1918.

The *mersina* form is much larger than the British race in both sexes, and the males are only slightly smaller than the females. In general coloration a long series strikes one as darker than any other race. The females

are especially dark on the hind-wings, and there is an absence of the tawny shade in the disc of all the wings. The lighter markings are not of the ivory yellow of the type nor of that of the bright Spanish race, but have a reddish suffusion. In the hind-wings this reddish shade is restricted to a series of submarginal wedges of moderate size, somewhat more pronounced in the males, which have also some lighter shade in the ground, generally, a character hardly apparent in the females. The eye-spots are almost invariably white pupilled, well formed and in the normal number, only one example approaches *ab. triocellata* Ragusa, with an unpupilled spot between the two normal eye-spots on the fore-wing.

On the underside of the fore-wing the ground-colour is a rich tawny, not in any example the ivory yellow of the type; there is but little dark separation between the discal and submarginal areas, these being practically continuous as in the form *algirica* Obthr. On the underside of the hind-wing there is a predominance of gray mottling, and scarcely a specimen shows the tawny or black shade markings of the British race. In the female the basal and submarginal areas are almost the same in depth of marking and marbling, but more or less divided by a blackish line, none too well emphasised. The mottling is very uniform over the wing, but coarse. None of the males have the strong tooth in the central line which is so prominent a character in the females. Most of the males have the basal and submarginal areas clearly separated by a light transverse band outside the blackish transverse line, which band shades off gradually into the gray mottling of the outer marginal area. In this respect one female only approaches the male.

Hipparchia anthelea Hbn.

"I found this species common on the southern range up to its highest altitudes."—J.A.S.B., 1916. (Not recorded by Led.)

"Fairly common on the Troödos range of mountains, May–July. I have taken a very few specimens on the northern range. Difficult to take as it is always among large rocks."—G.F.W., 1918.

A long series shows but small variation. One male and one female have an additional black spot on the fore-wing below the fourth from the apex. Another female has a

considerable intensification of coloration over the whole surface. Still another has a dark ring developed around the second white spot of the fore-wing. And several females have the usual sharp-pointed extension of the tawny band of the fore-wing into the disc more or less undeveloped.

Pararge aegeria L.

"I found this species fairly common."—J.A.S.B., 1916. (Not recorded by Led.)

"Not a common species, occurring both in the plains and on the mountains, generally near streams of water. April–September."—G.F.W., 1918.

Of the few which have been sent all have been typical *aegeria* with very minor aberration only, such a series as might have been obtained, say, at Hyères. Not one showed an approach to the brilliant specimens obtainable in Algeria, etc.

Pararge roxelana Cram.

"Recorded by Led. I found it locally; it frequents the tops of the carob trees."—J.A.S.B., 1916.

"A rather rare and very local species only occurring in the mountains at the Kyrenian Pass and at Troödos. Found in carob trees and in thick hedges, very rarely in the open, therefore very difficult to take. May–July."—G.F.W., 1918.

A short series very uniform in size and marking have been received. One male has an additional eye-spot on the underside fore-wing below the apical eye-spot. I note that the light discs above and below the apical eye-spot are more pronounced than in the Syrian form.

Pararge megera L. [race *lyssa* Hb.].

"Recorded by Led. I obtained it commonly; specimens were identified at Tring as var. *lyssa*."—J.A.S.B., 1916.

"A first brood of this rather uncommon species emerges in March, and another in May. Found in the plains and on the mountains in small number."—G.F.W., 1918.

The short series received appear to be all of the S. European form *lyssa* Hb., in which the underside of the hind-wing is grey instead of showing the dark-brown suffusion of the type. This character is more pronounced in the summer brood than in the earlier brood in which

specimens occur which approach the more northern typical coloration. The uppersides are very uniform in marking in both sexes, and there appears to be no difference in size, colour, nor marking between the two broods so far as my small series shows.

Pararge maera L. [race *orientalis* Stdgr.].

“Led. records the form *adrasta*. I obtained specimens of both forms. Miss Bate obtained the species in 1901.”—J.A.S.B., 1916.

“I think *P. maera* are Standinger’s var. *orientalis* rather than true *adrasta*.”—A.E.G., 1916.

“Found in the plains and on the mountains in small numbers. The first brood of this rather uncommon species emerges in March and another in May.”—G.F.W., 1918.

From the short series received which are mainly females this species as represented in Cyprus is remarkably uniform in colour, marking and size. It has the *adrasta* Dup., characteristic, increase of the fulvous areas on all wings, but is rather of a brown yellow than of an ochre yellow, and hence should be designated the race *orientalis* Stdgr. Curiously only one specimen has the apical spot bipupillate, which is a strong character of the females as a rule. This remark also holds for the underside. The hind-wings above show scarcely any brown yellow on the disc, the brown suffusion being predominant.

Epinephele telmessia Zell. (*E. jurtina* v. *telmessia* Zell.) [race *kurdistana* Rühl. (?)].

“Not common and extremely worn at Larnaka, June 25th, 1902.”—T.B.-F., 1902.

“This species was common; my specimens were race *hispulla*.”—J.A.S.B., 1916. [Not recorded by Led.]

“A very common species both in the plains and on the mountains from April to August. Found in small caves, on the brinks of rivers and under the shade of thick trees, preferably wattle.”—G.F.W., 1918.

Until the paper published in the “Bull. Soc. ent. Fr.,” p. 225 (1912) by Le Cerf, the form *telmessia* Zell., had been regarded as a *jurtina* race. However, when the genitalia of the two were examined and compared, ample evidence of their being distinct species was obtained. In *jurtina* there were found to exist two peculiar prolongations

of the lower posterior angles of the last free tergite, known as the Julien organs, which were not found in the *telmessia*. The figures given (*l.c.*) by Le Cerf show this very clearly.

E. telmessia in Cyprus is of a richer and darker coloration generally than one finds in *E. jurtina*. In marking both sexes resemble the race *hispulla* Hb., of the latter species, but are somewhat smaller.

The males have an androconial patch of a more defined shape, the tip appearing prominent in outline because the ground-colour of the discal area around it is lighter. The patch itself is brighter and more velvety than in the male of *E. jurtina*. Only in one or two examples do the males show a tendency to a submarginal band on the fore-wings. The apical spot is ocellated and occasionally has a small extension at the lower edge, which has become separate in one example as a small black dot.

The females have more resemblance to the race *hispulla*, the disc is never ochre yellow, but a rich foxy-brown instead. The wide submarginal band is always lighter than the discal area and is lighter still around the apical spot, while on the inner margin it has become quite evanescent. There is a tendency for this band to break up into blotches, as is the characteristic of the race *kurdistanana* Rühl. On the hind-wings there is but little development of the band, which is only of a very dull foxy-brown sufficient to differentiate it from the prevailing dusky ground. The apical spot is bipupillate in about 50% of the specimens, the lower pupil being always the smaller and often very small. One or two examples have a slight dot in the internural space below this.

The shading of the underside of the hind-wing below in the female is sometimes of a very pleasing arrangement of light greys with delicate shades of light orange thrown in.

Epinephele lupinus Costa (*E. lycaon* Rott., race *lupinus* Costa) [ab. *janirula* Esp.; ab. *subalbida* Schultz; ab. *intermedia* Stdgr.].

“This species was common. Miss Bate took race *lupinus* in 1901. My specimens included both forms.”—J.A.S.B., 1916. [If all the above specimens are in the B.M. this is an error.—H.J.T.]

“I am inclined to think one may call all the *lycaon*, var. *lupinus*.”—A.E.G., 1916.

“Flies at the same time and has the same habits as *E. jurtina*, but is not nearly so common.”—G.F.W., 1918.

This is another species of *Epinephele* which up till recent years has been confused with a well-known and common allied species of Central Europe. In 1909 Count Turati, after receiving many local forms of *E. lycæon*, made a thorough investigation of their genitalia and unhesitatingly separated *lupinus* as a true species (“Nat. Sic.,” p. 56, etc., pl. vii, figs. 1-9), calling it *rhamnusia* Frr., in error. Dr. Chapman has very kindly sketched the ancillary organs of the Cyprian *lupinus*, and they quite agree with those in the figures noted above.

E. lupinus is, in both sexes, considerably larger than *E. lycæon* of Central Europe, and the underside of the forewings is of a bright rust-red, practically uninterrupted in the male, but in the female the submarginal area is separated from the discal by a transverse dark line. The underside of the hind-wing is uniformly strongly speckled, and has very obsolescent transverse lines. The males have the androconial patches larger than in the males of *E. lycæon*, being both longer and wider and are more definitely margined and conspicuous. The general ground-colour is of a deeper brown, more on the black side than the orange side of brown coloration. In the female the bright orange colour is confined to conspicuous rings around the two (apical and marginal) spots. Occasional specimens have a slight fulvous flush on the disc of the forewing, but never in any degree comparable to what occurs frequently in *E. lycæon*, nor does this flush ever extend to the hind-wings, which in both sexes are practically uniform deep brown, showing now and then a faint indication of a transverse line separating the basal and marginal areas. The two black submarginal spots on the fore-wing of the female are mostly large and conspicuous, the apical being always the larger, but the mid-marginal spot is variable in size, and in one example is only represented by a black dot in a dull fulvous blotch. In nearly every example the apical eye-spot is centred by a minute white dot. In the male there is only one spot, the apical, which varies but little in size. Only in one female is there an incipient spot between the usual two on the fore-wing.

One specimen is very small, only measuring 40 mm. compared with 50 mm. the average of the *lupinus* in expanse; it may possibly be called the ab. *janirula* Esp.;

it was taken in the plains near Nicosia, and is a female. The more or less common Epinephelid aberration of irregular lighter patches of ground occurs only in one specimen in a very long series sent, a male, but hardly strong enough to be termed ab. *subalbida* Schultz. Most of the specimens, especially the females, have strongly scalloped hind-wings, and may be called the ab. *intermedia* Stdgr.

[*Coenonympha pamphilus* L.]

"I did not meet with it. Led. records this species and the form *lyllus*."—J.A.S.B., 1916.

"Recorded, but I have never seen it. In 1918 I heard of one having been taken by a school-boy at Kyrenia."—G.F.W., 1918.

Major Graves says (*in lit.*): "Occurs in Lebanon, but always at over 2000 ft. in my experience." Its occurrence in Cyprus has never been confirmed.]

Charaxes jasius L.]

"I found this species very sparingly. I took one specimen on a sugared tree in daytime at an altitude of over 5000 ft."—J.A.S.B., 1916.

"I have found this species very sparingly. It apparently emerges in July or August at a few localities both in the plains and on the mountains. It is very difficult to catch as it frequents the tops of large trees, usually fruit. I took one specimen on a 'sugared' tree on Troödos in July 1915 and another in July 1918."—G.F.W., 1918.

Comparing the specimen received with Sicilian examples there seems practical identity. The orange marginal coloration is perhaps somewhat lighter in shade in the Cyprian example.

Limnitis rivularis Scop.; ["*camilla* Schiff."]

"Led. records this species. I obtained it but not commonly on the mountains."—J.A.S.B., 1916.

"*L. rivularis* has the spots much stronger than those I took in the Balkans."—A.E.G., 1916.

"Confined to the Troödos range of mountains, where it occurs in June and July rather sparsely. Difficult to take as it is generally on blackberry bushes overhanging rivers."—G.F.W., 1918.

I see no variation from the ordinary European form.

Pyrameis atalanta L.

“Recorded by Led. as common, as I found it.”—J.A.S.B., 1916.

“A few are to be seen the whole year round in the plains, generally in gardens. I have only twice taken it on the Troödos mountains.”—G.F.W., 1918.

Quite an ordinary form.

Pyrameis cardui L.

“Fairly common at Limasol on June 25th, 1902. Large specimens, difficult to catch and fond of settling in the shade.”—T.B.-F., 1916.

“Very common everywhere. Recorded by Led.”—J.A.S.B., 1916.

“Very common everywhere. Fresh specimens emerge in April and July, but individuals may be seen on the wing throughout the year.”—G.F.W., 1918.

Quite normal specimens received.

Eugonia polychloros L. [race *fervida* Standfs.].

“Recorded by Led. I did not meet with it.”—J.A.S.B., 1916.

“Recorded in 1875. It has not since been seen until 1918, when I saw three individuals in a small pine plantation near my hut in Troödos, but owing to the denseness of the trees I was only able to take a very ragged specimen after several days spent trying to catch them.”—G.F.W., 1918.

The specimen referred to above must, I think, be called *fervida*, the Asia Minor race named by Standfuss and intermediate in size and brilliancy between the large and fiery Algerian race *erythrouelas* Aust., and the smaller European type. Probably the specimens seen were immigrants from the Taurus, where the race *fervida* is well known to occur.

[**Polygonia egea** Cr.

“Recorded by Led. as *V. triangulum* Fb. I did not meet with it.”—J.A.S.B., 1916.

No specimen received.]

[**Melitaea phoebe** Knoch.

“Recorded by Led. I did not meet with it.”—J.A.S.B., 1916.

None sent.]

Dryas pandora Schiff.

"I found this beautiful fritillary in some numbers high up on the southern range. It is very fond of visiting the flowers of a low ground-thistle."—J.A.S.B., 1916.

"All I have to say about this is that it is small and rather lightly marked. I daresay you have discovered that the best way to take this insect is when it is feeding on a thistle. It is a strong flier and difficult to catch on the wing."—A.E.G., 1916.

"Confined to the Troödos range of mountains at high altitudes. Flies in June, July and August, and is fairly common. Very fond of visiting the flower of a low ground-thistle."—G.F.W., 1918.

Quite small, and typical in marking and colour.

Libythea celtis Laich.

"Recorded by Led. I found it, though not abundantly, on the southern mountains."—J.A.S.B., 1916.

"Confined to the Troödos range of mountains. Rare. I have only taken it four times in ten years, during July and August."—G.F.W., 1918.

Klugia (Thecla) spini Schiff.

"Reported to me by Major P. P. Graves as having been taken in Cyprus."—J.A.S.B., 1916.

Bithys quercûs L.

"I obtained this species on the Southern range."—J.A.S.B., 1916.

"Confined to the Troödos range of mountains at high altitudes; it is not uncommon. Flies in June and July and is usually found on the dwarf oak (*Quercus alniifolia*)."—G.F.W., 1918.

The few examples received are quite typical.

Cigaritis acamas Klug. = [*Cigaritis zohra* Donz.].

"I obtained a few specimens from the Northern hills."—J.A.S.B., 1916.

"I have only taken this species once, on the Kyrenian mountains in July."—G.F.W., 1918.

Major Graves writes me: "I believe that Marsden showed me *Cigaritis* not *zohra* but *acamas* from Cyprus."

I have just received a *Cigaritis* taken on Troödos, Aug.

3rd, 1919, which is undoubtedly *C. acamas*. Lederer reports *C. acamas* as taken by Zach at Beirut commonly.

Loweia (Thersamonea) (Chrysophanus) thersamon Esp. [aest. g. *omphale* Klug.].

"I found this species common in the plains."—J.A.S.B., 1916.

"Specimens of both broods were sent. The later brood has short * tails to the hind-wings."—A.E.G., 1916.

"This species is fairly common in the plains. Three broods emerge each year; a small one in March, a large one in May or June and then a small brood in September. In 1918 I saw none in March and only one had emerged by June 12th, the date I left the plains."—G.F.W., 1918.

Until this year only odd specimens came. The spring brood specimens have no tails to the hind-wings, whereas members of the summer brood, known as *omphale* Klug., possess fairly long tails. There seems very little variation in the markings. An examination of about twenty, which have recently been received, leads one to the opinion that the tails in the females are more developed, longer and larger, than in the males. I note that specimens taken in October are tailed, and hence may be considered as the "laggard" portion of the summer brood rather than the "precocious" portion of the spring brood. Of course they may be an actual third brood, since the period between the summer and late autumn appearances is a comparatively long one.

Rumicia phlaeas L. [race *eleus* Fab.; ab. (race) *turcius* Gerh.; *caeruleopunctata* Stdgr.].

"Recorded by Led. I found it and the form *eleus* common."—J.A.S.B., 1916.

"This insect has two broods, a small one in March and a large one in May–August. Found on both ranges of mountains and on the plains. Fond of dry stony ground."—G.F.W., 1918.

"Var. *eleus* is much more common than *phlaeas* itself."—G.F.W., 1918.

Of the spring brood only a few have been received, taken in April and of quite ordinary form. A female, dated April 28th, is of large size and has the veins on the disc

* *A lapsus calami*.—H.J.T.

of the fore-wing well outlined with dark scales, while the hind-wing has a few small blue spots on the inside of the orange margin. One would call the slight projections on the hind margin "teeth" rather than "tails" in these early specimens. The rest of the series, captured subsequently up to August, are referable to a form of the southern race *eleus*, Fab., that is they have a dark suffusion, more or less of the depth of the other black markings, running from the base of the fore-wing over the whole of the discal area below the discoidal cell, internal to the marginal row of spots, and only touching the black hind-marginal band below and beyond the bipartite spot of the inner angle. This suffusion is usually a rich brown of varying depth rather than black. This particular form of the *eleus* race is the ab. *turcius* of Gerhard. In fact, Tutt's description in "Brit. Lep.," viii. p. 377, of Gerhard's figure might have been taken from a Cyprian specimen. One phase of this suffusion is the development of a brown black ring around each of the black spots of the fore-wing. In all these later specimens the tails to the hind-wings are well developed as a rule, and even the anal angle is emphasised into a very prominent tooth almost to be called a tail in some cases. There is much variation in size, the smallest specimen, a male, date Aug. 5th, Troödos, measures only 22.5 mm. in expanse, while a female taken there the day before measures 33.5 mm. There is but little variation in depth of the orange coloration. In some examples the dark marginal area is expanded inwards reaching closer to the row of black spots on the fore-wing; one or two females are well emphasised ab. *caeruleopunctata*, Stdgr., that is they have a row of blue spots on the hind-wing. The undersides seem very uniform in both colour and marking.

Lampides boeticus L.

"Recorded by Læd. Taken by Miss Bate in 1901. I found it extremely abundant, indeed in myriads in the cultivated leguminous crops."—J.A.S.B., 1916.

"A very common species from April to October, both on the mountains and in the plains in cultivated leguminous crops. It has three broods, in March, May and September, the first and last being small broods. This species varies greatly in size."—G.F.W., 1918.

The variations of the series sent are only slight extensions

or suppressions of the coloration and marking shown in the typical form. The blue area of the fore-wings in the female is somewhat more extended marginally. Most species which are attached to plants extensively cultivated vary greatly in size, and this species is no exception.

Syntarucus (Langia) telicanus Lang [race *aegyptiacus* B.-B.].

“Recorded by Led. In the Brit. Mus. Collection are Cyprus specimens from Lederer’s collection of the form *aegyptiacus*. I obtained it fairly commonly in the northern hills.”—J.A.S.B., 1916.

“Var. *aegyptiacus*. A not uncommon species in the plains during July and August. I have taken very few examples as I am usually away from the plains during these months.”—G.F.W., 1918.

Only a few specimens have been received.

Tarucus balcanicus Frr. [not *theophrastus* F.].

“Recorded by Led. The species was obtained by Glazner in 1896 (*teste* B.M.). I obtained the form in the southern hills.”—J.A.S.B., 1916.

“A fairly common species during May–July in the plains. Usually found on dry stony ground and on brambles.”—G.F.W., 1918.

T. balcanicus is treated in Seitz, “Pal. Gr.-Schm.,” as a form of *T. theophrastus*, hence possibly the apparent confusion. That these are two quite distinct species has been conclusively proved by Mr. G. T. Bethune-Baker in his “Revision of the genus *Tarucus*” (Trans. Ent. Soc., Lond., 1918), by the examination of the genitalia and of the androconial scales. Dr. Chapman has very kindly verified these Cyprians as *balcanicus* and not the new species which was (*l.c.*) described under the name *mediterranea*, B.-B. The long series received show scarcely any aberration.

Chilades phiala Gr.-Gr. = [*Zizera galba* Led.].

“Recorded in the Annals of the Cyprus Natural History Society (1912–13) as having been taken for the first time in 1912 or 1913.”—J.A.S.B., 1916.

“Fairly common in the plains.”—G.F.W., 1918.

A long series very uniform in size and appearance. I am indebted to the kindness of Dr. Chapman for the identification of this species by morphological examination.

Major Graves writes: "So far all '*galba*' I have seen from the Near East except those in Miss Fountaine's collection are *karsandra*."

[*Zizeeria lysimon* Hb.]

"Recorded, but I have never seen it."—G.F.W., 1918.
Recorded by Led.

One would be inclined to suggest this as a wrong identification for the last species, had not Lederer given a description. "Brown male, blue at base; fringes brown, underside pale grey with discoidal lunules and basal eyes; a double row of black marginal spots and angulated central row of black dots, $\frac{2}{3}$ inch." There has been no subsequent record.

Major Graves says (*in lit.*): "I am very doubtful as to whether *lysimon* occurs in the East, North of the Red Sea."

Chilades trochylus Frr.

"Recorded by Led. Taken by Miss Bate in 1901. I found it on both mountain ranges."—J.A.S.B., 1916.

"Fairly common in the plains May–August and also occurs rather rarely on both ranges of mountains. Found of dry stony ground."—G.F.W., 1918.

A long series also very uniform in appearance. One or two of the males are much smaller than the others.

Scolitantides baton Brgstr.

"*S. baton*, a rather large form."—A.E.G., 1916.

"A rather rare species first taken by myself in the plains in April 1914, since when I have each year taken two or three examples."—G.F.W., 1918.

In April 1919 this species seems to have been more common as about two dozen were sent me, most of them comparatively large in size. One or two of the males have a narrow dark margin to all the wings, otherwise they seem very uniform and typical in coloration.

Aricia medon Hufn. (*astrarache* Brgstr.) [form *ornata* Stdgr.; ab. *calida* Bell.; *brunnescens* Harr.].

"Recorded by Led. I found it very common."—J.A.S.B., 1916.

"Of var. *ornata*, the spring form, I have only one ♀, but it is very nice, the underside being silvery white and

the spots showing up well. The males received are not quite so distinctive. The majority are the summer form *calida*, but not so distinctly *calida* as those I took in Corsica and Algeria. The first *calida* is from Nicosia, May 30th. In this brood the underside is coffee brown."—A.E.G., 1916.

"This insect has two broods; one in March in small numbers, and one in June, the latter being very abundant both in the plains and on the mountains; usually found near water."—G.F.W., 1918.

No specimens of the spring brood have come, but a large number of the June–July emergence from Troödos. There are but few quite dark enough on the underside to be termed the ab. *calida* Bell., and some are fairly light. In all examples the submarginal band of red blotches on the upperside are strongly developed and of brilliant colour; in many specimens these blotches are continued of full size right up to the costa at the apex, and even when diminished in size only rarely is the topmost blotch absent. On the undersides the red blotches are also very vivid, they are large and pretty uniform in size. The inner side of each blotch on the fore-wing below is in most specimens margined by a black cloud, which is generally large on the blotches nearer the inner margin of the wing, but diminishing to a line or is even absent on the blotches towards the costa. In the reverse way these black clouds are margined on the inner side by white lines which are always present towards the costa, but diminish in strength towards the inner margin of the wing. All the spots on the undersides are of intense black and well developed. They are surrounded by very clear white rings especially marked in the discal spots of the fore-wings. The specimens are all of good size, in fact rather large compared with British examples, a few as large as average *Polyommatus icarus* females. In most specimens the fringes of the fore-wings were brown, dark enough to obliterate the chequer. I believe these last have been called ab. *brunnescens* Harr.

***Polyommatus icarus* Rott. [ab. minor Ckrl].**

"Common. The variation among males is very small. The females have an external series of outer-marginal spots (light in colour) outside the orange spots. One specimen was ab. *icarinus*."—T.B.-F., Larnaka, 25th June, 1902.

"The *icarus* males appear to present no special features."—A.E.G., 1915.

“Recorded by Led. I found it abundant.”—J.A.S.B., 1916.

“The male *icarus* are a fairly even lot. The spring brood has light underside sometimes without blue scaling. Two were only 21 mm. in expanse, too large by 1 mm. to be called ab. *minor*. The blue-tinted females of the early brood are interesting. Some have bluish-white lunules on the basal sides of the orange spots and are very beautiful. The best come from S. Hilarion in April. The summer-brood females have no blue scales. Ab. *celina* of the male with black spots between the veins at margin on hind-wing was not sent. This is generally found in late broods in the South. In one male the antimarginal band of spots on the hind-wing underside is missing.”—A.E.G., 1916.

“A very common insect everywhere having three broods, in March, May and September. Females with blue only occur in the first brood.”—G.F.W., 1918.

The series were taken in March, April, May, June and July, an odd female in September and a male in October. There are only a few females and these are in the May, June and July series. The males are remarkably uniform, even the undersides show only the smallest variation in general coloration and marking. The few females are practically identical, there is only the merest trace of blue powdering towards the base of the wings upperside. One female is ab. *minor* Ckrl., just 20 mm. in expanse, and another had the usually orange spots on both upper and under side changed to yellow. There was a tendency in the race to the ab. *icarinus* Scriba, form, in that the spots basad from the discoidal on the fore-wing underside were frequently ill-developed, very small, and in a few specimens the lower spot was absent. It was usually smaller than the upper one.

[*Glaucopsyche cyllarus* Rott.

“Recorded by Led. I did not meet with it.”—J.A.S.B., 1916.

“Recorded, but I have never seen them.”—G.F.W., 1918.]

Glaucopsyche paphos, n. sp. (Chap.) [*Glaucopsyche melanops*, Bdv.].

“I obtained this species on the Northern mountains in spring.”—J.A.S.B., 1916.

“ Occurs on both ranges of mountains in small numbers. On the Kyrenian range it flies during April and^o May, and on the Troödos range during June and July.”—G.F.W., 1918.

Not being satisfied with the received determination of the Cyprian series as *G. melanops* Bdv., I submitted them to Dr. Chapman, who after some comparisons thought that they were probably a form or race of *G. charybdis* Stdgr. On further examination, however, he considered that he was justified in announcing it a new species standing somewhat close to *G. charybdis*.

Only a few specimens were obtained, and these were from the two ranges of mountains. One would like to get the other brood from each place if there be one. The two sets differ considerably in size; those from the Kyrenian mountains are much the smaller in both sexes. These northern early specimens being the smaller would seem to point to their being of an early brood, the offspring of summer larvae, added to the fact that the later specimens from Troödos are large and probably the imagines from well-nourished spring larvae. The undersides of both series are very dark and the spots on the fore-wings below very large. One female from Troödos has a series of blue dashes on the outer margin of the hind-wings.

Major P. P. Graves writes me: “ The only Cyprian *melanops* I have seen struck me as being somewhat different from French *melanops*.” He goes on to doubt the occurrence of *melanops* in Cyprus when it does not occur in “ S. Italy(?), Greece, Asia Minor, Turkey, etc.,” and suggests the examination and comparison of its genitalia.

G. paphos has the general appearance of a *Glaucopsyche*, and at the first glance, without comparison, might readily be taken for a dark form of *G. melanops*. When, however, series of the two species are placed side by side one immediately separates them, both the males and the females, as being quite distinct. The blue of the males of *G. paphos* is deeper, more dense and richer, and although the veining may be apparent it is by no means distinct as in *G. melanops*, nor is there any suggestion of the silvery sheen of the latter. The margins are deep black somewhat wider than in *G. melanops*. The ground-colour of the female is a uniform deep black brown very distinct from that of the *G. melanops* female, and quite without any blue suffusion from the base, but with a few traces of blue spots on the hind margin of the

hind-wings of one example. On the underside the ground-colour of *G. paphos* is dark with much less grey in it than in the other species and without any blue suffusion at the base. The curved row of spots on the fore-wing assimilates generally to that of *G. melanops*, but the fourth spot from the costa is in alignment with the second and third and not as in *G. melanops* "round the corner" in alignment with the third and fifth. On the margins of the hind-wings of *G. paphos* there are no traces of the semi-suppressed row of eye-spots which are invariably found in *G. melanops*.

Celastrina argiolus L. [ab. *hypoleuca*, ♀, Koll.].

"I found this species abundant high up on the southern range."—J.A.S.B., 1916.

"*C. argiolus* is a distinct form with very white almost unspotted undersides in summer brood. No spring brood specimens were sent."—A.E.G., 1916.

"Confined to the Troödos range of mountains, where it is common during June and July. Usually found near water on the dwarf oak and among bracken. Mr. Gibbs thought this species might be separated into a Cyprian variety on account of its very pale and almost spotless underside."—G.F.W., 1918.

Only specimens of the later brood have been received. The females are particularly dark, a small area only of the fore-wing and scarcely any of the hind-wing has blue coloration; in fact, in a long series one might reasonably expect to find an uniformly dark female, so much has the blue become obsolescent. The underside, as noted by Mr. Gibbs, is light in colour and the markings are much diminished in emphasis, but in some specimens I note that the most obvious underside markings are the dark submarginal V marks beginning at the inner angle and diminishing in size upwards on the fore-wings. The dark female is, I believe, the form known as ab. *hypoleuca* Koll.

Major P. P. Graves tells me that this dark form of female occurs in Syria.

Carcharodus alceae Esp.

"Recorded by Led. I found it abundant in the plains."—J.A.S.B., 1916.

"Fairly common everywhere, March–October."—G.F.W., 1918.

A fairly long series with very little variation was received.

The smallest male measures 23 mm. in expanse and the largest 32 mm.

[*Carcharodus (Spilothyrus) boeticus* Ramb. (*marrubii* Ramb.).

“Recorded by Led. I did not recognise it.”—J.A.S.B., 1916.

This was recorded by Led. as *Hesperia marrubii*. None have been sent me, so I am unable to substantiate the record.

Major P. P. Graves writes me: “I take it that by *marrubii* was meant one of the *altheae* group, *boeticus* or perhaps *E. orientalis* Rev. I have *E. boeticus* from Beirut and *E. orientalis* from Lebanon localities.”]

***Hesperia (Powellia) orbifer* Hb.**

“Led. records this. I did not find it.”—J.A.S.B., 1916.

There seems to be no subsequent record of this species in spite of considerable collecting over ground on which it should appear if present.

Lederer reports this species as *Hesperia eucrate* Esp., and var. *orbifer* Hb. His collector, Zach, also took the two at Beirut (July 1853–Aug. 1854).

Major P. P. Graves says: “This species is so widespread in Asia Minor and the North and Centre of the Syro-Palestinian area, only ceasing in the low ground of part of S. Palestine, that I am strongly inclined to follow Lederer and put it down to the credit of Cyprus. I think that the earlier collectors in the Near East frequently confused *P. sao* Hb., or forms thereof, with *P. orbifer*. *P. sao* seems to reach W. Macedonia (*vide* Barraud’s lists), but I have not yet seen any clear evidence of its occurring in the S.E. Balkans, let alone Asia Minor. I think that the large rather brightly marked form of *P. orbifer*, which occurs in spring at Beirut, etc., may be intended by Lederer for *P. orbifer*, and that by *H. eucrate* may be intended the small less distinctive-looking later brood specimens.”

[*Hesperia (Powellia) sao* Hb. [race *eucrate* Och.].

“Led. records this. I did not find it.”—J.A.S.B., 1916. See the above remarks under *P. orbifer*.]

[*Hesperia alveus* Hb.

“Led. records it. I did not obtain it.”—J.A.S.B., 1916. This record also seems never to have been confirmed.

Major P. P. Graves writes me: "As far as I can understand from Reverdin's and Oberthür's work on the subject *H. alveus* proper does not seem to have been recorded except in France, Spain, Switzerland, Italy, and ? Germany, etc., in fairly high altitudes, and its place on the low ground is taken throughout most of Europe by *H. armoricanus* Obthr. I have taken the latter once in the Lebanon, where it is a high-ground insect, and frequently at Constantinople, where it occurs at the sea-level. I have seen specimens from Brussa, and took one at Smyrna, Oct. 18th, 1913. The statements made by Staudinger *re* the occurrence of *H. alveus* in Asia Minor ("Lepidopteren Fauna Kleinasien") are worthless because he did not recognise the difference between the many forms of the *alveus* group (*onopordi*, *fritillum*, etc.). He did not submit his captures to any microscopic examination of the male genitalia."]

[*Hesperia malvae* L.

Led. records this species. I did not recognise it.—
J.A.S.B., 1916.

Again an unconfirmed record.

Referring to the worthlessness of the Staudinger records of this group, Major P. P. Graves writes (*in lit.*): "Consequently one can say little as to what occurs in the interior of Asia Minor in the way of 'spotted skippers,' and of *malvae* he says, "Constantinople region, not common."]

Thymelicus (Adopaea) acteon Rott. [race *obsoleta* Tutt;
clara Tutt].

"Led. recorded this species. I found it common."—
J.A.S.B., 1916.

"Fairly common in the plains in May."—G.F.W.,
1918.

A long series were received, all very uniform and somewhat larger and lighter in colour than the average Central-European form, especially the males. There is an absence of the usually distinct pale markings noted in the British and Central-European races, and hence the form may be called *obsoleta* Tutt, combined with form *clara* Tutt, that with more golden brown ground-form *clara-obsoleta*.

Major P. P. Graves says (*in lit.*): "Syrian *acteon* are larger and much less markedly suffused than those from Greece (Athens), Asia Minor, etc., in my collection."

Adopaea flava Brunn. (*thaumas* Hufn.) (*linea* Fab.).

“Major P. P. Graves informs me that this species has been taken in Cyprus by Mr. Marsden. I did not recognise it.”—J.A.S.B., 1916.

Major P. P. Graves writes me: “I saw a bad specimen of this or *A. lincola* in a small collection formed by Mr. T. H. Marsden of Alexandria in the Troödos range.”

Mr. Wilson has not met with this species.

Gegenes nostradamus Fab.

“Recorded by Led. Taken by Miss Bate in 1901. I did not recognise it.”—J.A.S.B., 1916.

“Rather rare in the plains in June and July.”—G.F.W., 1918.

Two or three specimens received are quite typical and indistinguishable from a specimen I have from Central Italy.

Parnara mathias Fb.

“I found this species common.”—J.A.S.B., 1916.

“Rare in the plains in June and July.”—G.F.W., 1918.

Four specimens only have been received. Evidently it is very local.

[**Parnara zelleri** Led.

“Major P. P. Graves informs me that this species has been taken in Cyprus. I did not find it.”—J.A.S.B., 1916.

There is no confirmation of this record. Major Graves says (*in lit.*): “I once took this species at Beirut.”]

In conclusion, I wish to express my thanks to the Rev. G. Wheeler for looking through the manuscript, and also for help with the proof.